

Wireless Sensor for Early Detection of Overheating Cables



SMT10020

HeatTag is a smart sensor for early detection of overheating wire connections or overheating cables. HeatTag helps prevent electrical switchboards from being damaged, by analyzing gas and particles in the air and sending alerts before any smoke or insulator browning.

Standards

The HeatTag smart sensor complies with the following standards:

- IEC/UL 61010-1
- IEC 61010-2-201
- IEC 61326-1
- IEC61326-2-3
- ETSI EN 301 489-1
- ETSI EN 301 489-17
- ETSI EN 300 328
- EN 62311
- EN IEC 63000
- IEEE 802.15.4 protocol
- FCC and IC certified

Note:

Do not use HeatTag as a safety device. HeatTag does not replace the fire protection devices of the building.

Presentation

HeatTag smart sensor:

- Sends three levels of alert depending on the severity of the situation it detects.
- Helps prevent potential fire damages by analyzing gas and micro-particles emitted by cable sheaths when overheating.
- Measures temperature and humidity.
- Communicates with all Schneider Electric EcoStruxure panel servers or gateways.
- Is integrated in EcoStruxure solutions.

The HeatTag sensor must be installed only in non-forced air ventilated switchboards. It must be mounted on a DIN rail.

During the first 30 minutes after commissioning, HeatTag can generate an alert for test. It then takes another 8 hours for HeatTag to define its nominal environment and to be fully operational. Each time the HeatTag sensor is powered on, these 30-minute and 8-hour sequences are repeated.

Operation

Paired with Schneider Electric panel servers or gateways, HeatTag reports:

- Alerts
- Air quality index
- Temperature and humidity measurement
- Self-diagnosis information

Air Quality

HeatTag provides an air quality index, ranging from 0 to 10, and displays the air quality evolution trend in a table.

When the air quality index is equal or above 10, HeatTag sends an alert. It has detected abnormal cable sheath heating in the switchboard.

Detection Alert

An alert is triggered when HeatTag detects abnormal cable sheath heating in the switchboard, which can be caused by:

- One or more loose connections (too high contact resistance)
- An incorrectly sized cable compared to the rated current
- Overload not detected by the protective equipment

Alerts are triggered with three severity levels:

- Low level: a cable is slowly overheating in the installation, you must plan a maintenance visit of the installation.
- Medium level: a cable is overheating in the installation, you must go quickly to the installation for maintenance.
- High level: a cable overheats very quickly, you must check the installation immediately.

The orange application led flashes when HeatTag sends an alert to the panel servers or gateways.

Temperature

HeatTag provides a temperature value with a 60 second default transmission period. The transmission period can be increased by the system in case of high wireless data traffic.

Humidity

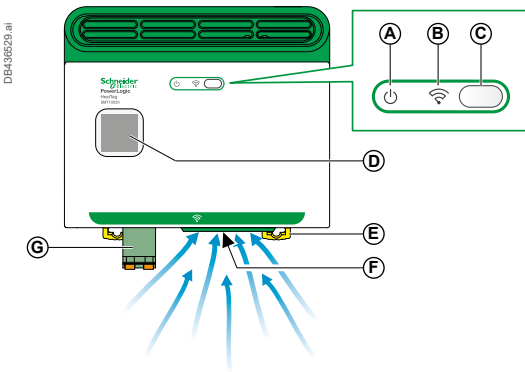
HeatTag provides a humidity rate with a 60 second default transmission period. The transmission period can be increased by the system in case of high wireless data traffic.

Self-Diagnosis

HeatTag carries out two types of diagnosis:

- A minor alert is sent when the fan rpm is 80% of its nominal rpm, which means fan clogging.
- A major alert is sent when HeatTag is faulty. In this case it cannot report measures at all, nor reports incorrect measures.

Wireless Sensor for Early Detection of Overheating Cables



HMI Description

Overview

Legend	Display	Description
A	Operation LED	Indicates the power supply and the alert status.
B	Network status LED	Indicates the communication status with the panel servers or gateways.
C	Operation button	Used for pairing or acknowledging an alert, for unpairing, and for resetting values to factory settings.
D	QR code to access device information	Link to HeatTag product information.
E	DIN clip	Used to fix HeatTag on a DIN rail.
F	Air inlet	Enables aspiration of internal air of the switchboard.
G	Power supply connector	Used to connect the power supply.

Operation LED

Color	Status LED	Description
Green		HeatTag is in test mode.
		HeatTag is in normal operation.
Orange		HeatTag has triggered an alert. Look for the cause of the heat rise in the switchboard.
		Minor malfunction detected. Maintenance of HeatTag required.
Red		Major malfunction detected. Replacement of HeatTag required.

Network Status LED

Color	Status LED	Description
Green		HeatTag is in identification mode.
		HeatTag is in the network, normal communication with the panel servers or gateways.
Orange		HeatTag is searching a panel servers or gateways.
		HeatTag is unpaired with factory settings
Red		Reset to factory settings is in progress.
		Occasional loss of communication.
		Loss of communication with the panel servers or gateways.
		Internal error detected.

PowerLogic™ HeatTag Wireless Sensor for Early Detection of Overheating Cables

HeatTag Smart Design

- No settings
- Nominal environment auto-learning to avoid false alerts
- Concentrator auto-discovery
- Alerts generated by a powerful algorithm integrated in HeatTag

Electrical Characteristics

Supply voltage	110-277 V AC, -15 % / +15 %
Frequency	50-60 Hz
Max. consumption	0.1 A
Operating temperature	-15 °C / +70 °C (5 °F to 158 °F)
Storage temperature	-20 °C / +85 °C (-4 °F to 185 °F)
Relative humidity in operation	15-90 %
Altitude of use	0-2000 m (0-6500 ft)
Degree of pollution (IEC 60664-1)	3
Overvoltage category	OVC III

Sensor Characteristics

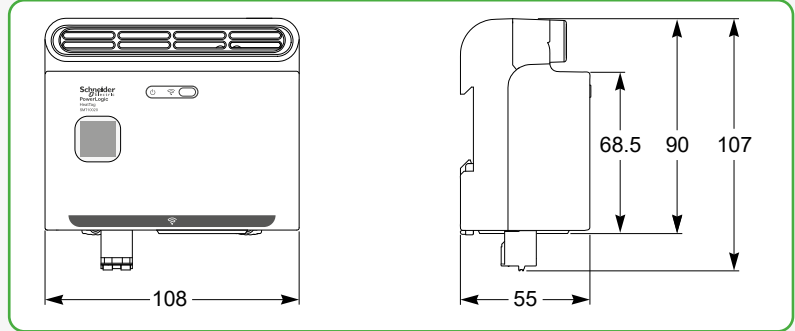
Temperature measurement	Measurement range	-15 °C / +70 °C (5 °F to 158 °F)
	Measurement accuracy	-1.1 °C / +1.1 °C
	Default transmission period	60 seconds (higher in case of high wireless data traffic)
Humidity measurement	Measurement range	15–90 %
	Measurement accuracy	±9 RH %
	Default transmission period	60 seconds (higher in case of high wireless data traffic)
Air quality		Index (0 to 10), alert generation when index ≥ 10
Test alert after pairing		During the first 30 minutes
Environment auto-learning phase		8 hours after the first 30 minutes

Mechanical Characteristics

Dimensions (W x H x D)	108 x 107 x 55 mm
Weight	270 g
Degree of protection (IEC 60529)	IP20

Wireless Sensor for Early Detection of Overheating Cables

Dimensions



Installation

Mounting

HeatTag must be installed on a DIN rail following the Instruction Sheet recommendations (MFR51738). It is delivered with a separate connector.

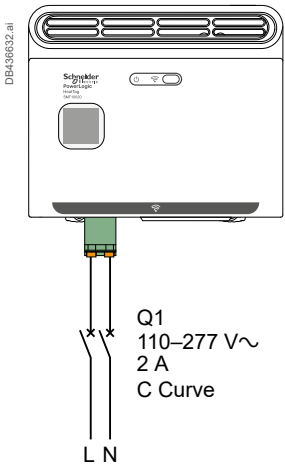
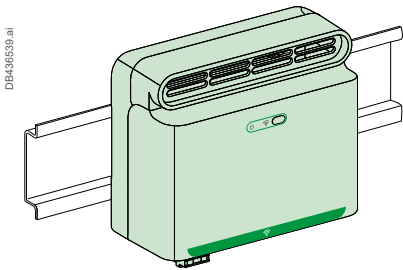
Wiring

The HeatTag must be protected by a 2 A circuit breaker curve C or fast-acting fuse.

Communication Architecture

List of compatible communicators:

- EcoStruxure Panel Servers
- PowerTag Link
- PrismaSeT Wireless Panel Server



Schneider Electric Industries SAS

35, rue Joseph Monier
CS 30323
92506 Rueil Malmaison Cedex
France

RCS Nanterre 954 503 439
Capital social 928 298 512 €
www.se.com

As standards, specifications and designs change from time to time, please ask for confirmation of the information given in this publication.

©2020 Schneider Electric. All Rights Reserved. Schneider Electric | Life Is On is a trademark and the property of Schneider Electric SE, its subsidiaries, and affiliated companies. All other trademarks are the property of their respective owners.

COM-POWER-HeatTag_EN